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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,108	12/20/2001	Ching-Pang Lee	13DV14203	3092

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/11/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/028,108

Applicant(s)

LEE ET AL.

Examiner

Jennifer McNeil

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-- Th MAILING DATE of this communicati n appears n the cover sheet with the correspondence address --
Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2003 .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____ .

DETAILED ACTION

This action is in response to the amendment submitted May 28, 2003.

Double Patenting

Claims 1, 2, 4, 5, 6, 7, 8, 9, 11, 14, 15, 16, 17, 18, 19, 20, and 21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 5, and 9 of U.S. Patent No. 6,511,762. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of the patent fully encompasses the limitations of the instant claims.

Claim 1 of '762 recites a metal substrate having a channel with a first and second end, wherein the first end is coated with a bond coat and multiple layers of a thermal barrier coating. The claims of '762 also recite that the bond coat partially fills the channel, and the thermal barrier coating completely fills the exit orifice. The combination of these claims (claim 1 and 3) is entirely consistent with independent claim 1 of the instant application. Claim 5 also recites the diameter of the channels as 0.002 to 0.008 inches (50-203 microns). Claim 9 recites that the thermal barrier coating may be YSZ. While '762 does not provide the interdependency of the claims as does the instant application, it would have been obvious to one of ordinary skill in the art to provide an article sharing these limitations. Regarding the limitation of the type of bond coat used, aluminide coatings are well-known in the art of thermal barrier coatings, as exemplified by '762, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use an aluminide coating as the bond coat, as it is known to provide adhesion between the substrate and the thermal barrier.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(a) as being anticipated by Beeck et al (US 6,241,469). Beeck et al teach a turbine blade having a metal wall with cooling bores (13) therethrough (col. 2, lines 23-25; col. 4, lines 8-13). As shown in Figure 1, the leading edge (9) is coated with an intermetallic layer (10), considered a thermal barrier. Only some of the bores are completely formed in the metal wall and the protective layer (10). Some of the bores are covered and sealed by the coating.

Regarding claim 2, the bores are open on the opposite side of the wall.

Regarding claim 3, there is no bond coat present.

Claims 1, 2, 4, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Scheurlen (US 6,039,537). Scheurlen teaches a turbine blade with bores through a metal wall (col. 5, lines 10-12, lines 33-35). At least one of the bores is closed by the heat-insulating layer system.

Regarding claim 4, a bond coat may be provided (col. 6, lines 1-5).

Regarding claim 19, as shown in Figure 1, the metal wall may be in the form of a turbine blade.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-11, 14-18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheurlen (US 6,039,537) in view of Bruce (US 6,210,488). Scheurlen teaches a metal wall having bores therethrough and coated with a bond coat and an insulating layer, as discussed above. Scheurlen does not teach that the bond coat extends inside the bores, and does not specify the diameter or pitch of the bores. Bruce teaches a turbine engine component comprising a metal wall cooling holes therethrough. The article is coated with a bond coat and a thermal barrier layer. The coating process results in the bond coat being formed in the holes. While Bruce teaches that the thermal barrier layer is to be removed, it is the teaching of the bond coat deposited on the inner walls of the holes that is remarkable. Bruce teaches that the bond coat provides adhesion for a ceramic layer. Bruce teaches that the bond coat integrity is to be maintained. As it is shown by Bruce that deposition of a bond coat onto the holes of a metal wall is desirable for adherence of a ceramic layer, it would have been obvious to one of ordinary skill in the art at the time of the invention to deposit the bond coat of Scheurlen in a manner such that the bond coat is also deposited on the walls of the bores.

Regarding claim 10, absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the bores of Scheurlen in an amount and pitch sufficient to provide the desired cooling to the metal wall.

Regarding claim 11, absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the bores of Scheurlen in a diameter sufficient to provide the desired cooling to the metal wall.

Regarding claims 14 and 15, Scheurlen teaches an aluminide bond coat, and YSZ thermal barrier (col. 1, lines 28-32; col. 2, lines 33-36).

Regarding claims 16, 17, 18, 20, and 21, Scheurlen teaches that the substrate is for a turbine engine component such as a blade and also teaches that it is feasible to construct the blade as a heat shield or

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heat shield element for use in a gas turbine. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a turbine engine component with the bores and coatings of Scheurlen as modified by Bruce, for the purpose of cooling the articles and extending the life of the component.

Allowable Subject Matter

Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment has necessitated the new grounds of rejection.

Applicant's remarks regarding Lee '762 have been considered and the 102(e) rejection withdrawn. Upon further consideration, the double patenting rejection over Lee '762 was deemed proper (see above).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer McNeil whose telephone number is 703-305-0553. The examiner can normally be reached on Monday through Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer McNeil
Examiner
Art Unit 1775



JCM
August 4, 2003